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, RHINEBECK, N. Y.

Jan 3 1900

340

Proctid on Sponsea, Crotalaria, Canna etc.
Feet only on 7, 10 & 13, no traces of other abd. feet.
Hd rounded, large, green, in some with a
few black dots & lines on the side some dis-
tance behind the ocelli. Body green, some-
what transparent, piliferous dots black. A
double d. & s.d. line, ~~marked~~ crenulate,
pale yellow, the s.d. ones avoiding the pil. dots,
forming curves around them. A straight
single, faint sub-stig. line. Spinules black.
(Honolulu, H.I. Feb 1892) Setae blackish, rather
cocoon. double, at top of case, cuticle of fine
white silk thin and transparent.

Pupa very pale green with a broad brown band
on the back which is irregularly streaked
transversely with darker brown. Cylindrical,
abd. smaller than thorax, crenulate then,
feet pale brown, ending in 2 large spines di-
rected backward; leg coxae extending slightly
beyond wing coxae in a rounded projection;
thorax largest on its post. half l. 20, w. 45
Imago, Feb 26, 1892. Cat. no. 6976.

Phasia chalcites Esp

7341 x 22 221
Elisivampa *agrippa* *de la bota*
 Belmont
 San Mateo Co. Cal. April 13, 1892. Head round
 black, very hairy except where the ocelli are, white.
 Hair long, fulvous; width 2.7 mm.
 Body entirely black, except the tip of abd feet which
 are pale, covered with long fulvous hairs, quite
 thick especially dorsally & laterally. It is
 slightly keeled along d. line and tufted
 laterally and on the segs. (in some tinged
 with powdery blue in front over the clypeus)
 Body almost entirely without marks; some
 have a double irregular brick red d. line ^{interrupted in segments}
 & all have a series of o-d small blue dots, 1
 per seg. in some obscure & wanting on the
 central segments. [sh. hd 1.8, 1.8] and a
 lateral series of red dashes.
 Cocoon Apr 19 of silk, oval, thin, but made
 opaque by a glind which dries to a yellowish
 powder.
 * and narrowly centrally on segs. & mounted with
 the ground color. The hair are simple,
 without branches, & taper to a point at
 the tip.
 Image May 21 of Cat. n. 7317 *Elisivampa californica*?

Call. .49 .76 1.14 1.75 2.7 ratio .65
 Toured 4 7 12 1.75 2.7
 195 SIXTH ST. Agryia pulosa H.
 Live oak *Quercus agrifolia* (Larvae from Belmont, San Mateo Co.
 Clipping on oak *Quercus agrifolia* (Larvae from Belmont, San Mateo Co. & Del Norte
 [sh. hd. box] PORTLAND, OREGON. d. 2 long
 black w. 4 mm. Body pale fuscous (acutely to most)
 wants normal, (4) represented by pale dots (1) small,
 all black, shiny, (2) on 2 large with swollen base
 all bearing several black hairs, long from the
 extremities & sides. Feet normal, (on 3, 4 the
 dorsum is nearly white, on 9 yellow & on 10 & 11
 a large brick red d. spot, but no elevation.
 Another Hd black, line above mouth & base of antennae
 white [sh. hd. 7] 7.7
 w. 7 mm. Body black, (2) on 2 large, but
 bearing only ordinary hairs, on 3, 4 & few pale d-
 hairs & on 5-7 a few black ones, carrying over
 d. line but not numerous enough for tufts
 want all black, but tubercles on 10 & 11 large
 orange colored. Dorsum of 3 & 4 pale yellow. of
 9 darker yellow. Tip of abd. feet pale orange.
 Hair long, black, mixed with pale hairs.
 Another (at Monterey) Hd same, [sh. hd 1.2] (other sh. hd 1.2 full)
 w. 1.1 mm. Body black,
 laterally, the dorsum broadly pale yellow but
 transversely streaked with black at the middle
 of each seg, these bands becoming broader
 post. till cover most of joint. Also black inter
 seg. & broadly on 5-8. Warts blood red, not

III began to come May 5 (Sh hd from 2.0 mm) ^{tufts unicolorous pale}
 molt May 6 (Sh hd 1.8 mm) Pericils brown gray, not darker on crest
 Other IV new head 2.7 mm ^{tufts white - much} (paler than I who has them nearly black on crest)
 Other V molt May 7, 6:45 PM, (Sh hd 2.0 full) new head 2.8 at least
 Tufts unicolorous pale gray, not darker on crest, nearly white

Pupa cylindrical, abd. much larger than tho, with a depression between eyes prominent; a tuft of recurved hair at end of abd; abd. segs motionless. Sawtooth shiny light red brown blackish in the median cases creased. L 19, W tho. 6.5, g abd 8 mm.

Adult one began to come on core of log. Core of hair and silk as in *Halisidota*. Coon 30 x 15 x 15 mm, elliptical, thin, made like caryac but much less hair, as there is less on the larva. (One ate the pine in log)

*The black tuft grow from an elliptical area of the skin occupying the place of ① & extending also further dorsally & another similar area just above & partly encroaching on ②. The yellow hair are the same in structure as all the other radiating hair from ② & the lateral wart, & are about 1/4 the hairs of ②, merely differing in color.

On 2, cth, hemispherical, black shiny, impressed centrally ③ s-d ④ sty ⑤ 2-v. On 3 & 4, ② - ⑥, the ⑥ small. On 5-12 ① obliterated by ① hair patch ② post, elongated by hair patch, ③ ant., ④ post. stig.; ⑤ ant, ⑥ post, with s-v & large, ⑦ not small but ⑧ minute on venter of 4, 6, 12, 12 and 13 ant. On 13, one large s-d wart, as if of 3 coalesced & one s-v, and a pair on anal plate. Under glass the hair are all furnished with many short branches pointing toward end of hair at 45°. Specially longer on black hairs.

At Albina Oregon. same has lateral hair all brown. Imago June 12, 1892. Cat. no. 7483 *Halisidota argentata*

Calc.	1.1	1.6	2.2	3.2	4.5	rat 70
Calc.	1.0	1.4	2.0	2.8	4.0	rat 70

$$344 = 323$$

See 378

Pseudohagis eglanterni? on blue Ceanothus, Monterey Cal. Apr 15, 92. (Hd 1.4, 1.7, 1.9 abd)

On 3rd 2.5 s-d black, anten 90 depression, lateral whitish ^{a faint pale hair} body entirely black, spin 4 rows 2-6 & 11, 3 rows 7-10 on 12 1 dorsal & 2 rows on 13 1 dorsal post & 3 rows, ^{but none on anal plate w any part of joint} spin black with many closely set branches, yellow & each tipped with a hair. Row ① on 4-12 are shorter and the branches more closely set, making them appear more like branches of bristles. On the skin of body are short whitish hair & faint traces of white s-d. ^{lat} s-d & sub-sty line ^{or entire black} [shld 1.6]

Another hd 2.5, 2.5? 3.0 (same) 2.5-2.5, 1.6 (same) 1.5; Hd 1.1 black with a few hairs; body purplish black, the spin same but rather longer in proportion & less closely branched, while the branches are all black like the spin except ³⁻¹² ^{shld 2.7, 2.9, 2.8} those of ① on 3-12. Molt Apr 22 Hd 4.0 (see 323) [shld 2.5] [shld 2.8 new hd 4] [shld 2.5, new 3.9] Little one shed May 1 shld 1.2, new hd 1.6 mm. Shed again?

Cooned June 5
Imago July 14

Calc .7 1.0 1.5 2.1 3.0 not 70
 Average lds. .6 .9 1.5 2.1 3.0
 There is evidently a slight diminution in the ratio of growth as the larva gets older.

Cambisimilis

Chrysocampa on apple & cherry, Montgomery
 Cal., Apr. 16, 1892. Hd black, labrum & bases of
 antennae whitish; covered with rather long
 whitish hair. W. 14 mm. Body black, with a narrow
 pale blue d. line, each side of which is a broad
 irregular orange red band, broadest on the
 center of the segs. Lateral region pale, grayish,
 defined by a yellowish lateral & stigmatal
 line. Abd. feet tipped with pale orange
 joint 2 all black. Hair long, irregular, not
 distinctly tufted nor beaded, red on its
 dorsum, white laterally.

Stage Hd 9 mm Same, but d. line absent all
 black, the sd red line more distinct as also
 the lateral pale line. Hair less well developed
 but colored the same.

2nd Hd .6 black with a few pale hair. Body black
 with 2 reddish yellow sd line, broad & irregular
 on the outer edge. Lateral region pale with a
 lateral & stigmatal pale yellowish wavy
 line bounding the pale space. Hair thin,
 long, pale brownish. Joint 2, 3, 12 & 13 are
 nearly all black, the marks being obsolete.

Calc .55-.60, .83-.92, 1.3-1.4, 1.9-2.1, 2.9-3.2 not 66
 Found .6 .9 1.4-1.6 2.0-2.2 2.8-3.2

Thoracic feet black; abd pale at tips.
Stage Hd 2.4 Hd pale blue speckled with black,
 labrum & bases of ant. whitish, jaws black.

Covered with blackish & white hair. Body black
 dorsally, with a d. pale blue line, ^{broken in many light} rusty red
 sd line, duplicated by a few dot on the post.
 of each seg. A series of small pale blue sd dots.
 Lateral region pale blue or gray, bounded by
 the yellowish or gray lateral & stig. line.
 dorsal hair red, lateral white, somewhat
 tufted on the segments ant. [Hd .5, .6, .7, .8, .9, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 5.0, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 6.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 7.0, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 8.0, 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 9.0, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 10.0, 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9, 11.0, 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8, 11.9, 12.0, 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7, 12.8, 12.9, 13.0, 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8, 13.9, 14.0, 14.1, 14.2, 14.3, 14.4, 14.5, 14.6, 14.7, 14.8, 14.9, 15.0, 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 15.9, 16.0, 16.1, 16.2, 16.3, 16.4, 16.5, 16.6, 16.7, 16.8, 16.9, 17.0, 17.1, 17.2, 17.3, 17.4, 17.5, 17.6, 17.7, 17.8, 17.9, 18.0, 18.1, 18.2, 18.3, 18.4, 18.5, 18.6, 18.7, 18.8, 18.9, 19.0, 19.1, 19.2, 19.3, 19.4, 19.5, 19.6, 19.7, 19.8, 19.9, 20.0, 20.1, 20.2, 20.3, 20.4, 20.5, 20.6, 20.7, 20.8, 20.9, 21.0, 21.1, 21.2, 21.3, 21.4, 21.5, 21.6, 21.7, 21.8, 21.9, 22.0, 22.1, 22.2, 22.3, 22.4, 22.5, 22.6, 22.7, 22.8, 22.9, 23.0, 23.1, 23.2, 23.3, 23.4, 23.5, 23.6, 23.7, 23.8, 23.9, 24.0, 24.1, 24.2, 24.3, 24.4, 24.5, 24.6, 24.7, 24.8, 24.9, 25.0, 25.1, 25.2, 25.3, 25.4, 25.5, 25.6, 25.7, 25.8, 25.9, 26.0, 26.1, 26.2, 26.3, 26.4, 26.5, 26.6, 26.7, 26.8, 26.9, 27.0, 27.1, 27.2, 27.3, 27.4, 27.5, 27.6, 27.7, 27.8, 27.9, 28.0, 28.1, 28.2, 28.3, 28.4, 28.5, 28.6, 28.7, 28.8, 28.9, 29.0, 29.1, 29.2, 29.3, 29.4, 29.5, 29.6, 29.7, 29.8, 29.9, 30.0, 30.1, 30.2, 30.3, 30.4, 30.5, 30.6, 30.7, 30.8, 30.9, 31.0, 31.1, 31.2, 31.3, 31.4, 31.5, 31.6, 31.7, 31.8, 31.9, 32.0, 32.1, 32.2, 32.3, 32.4, 32.5, 32.6, 32.7, 32.8, 32.9, 33.0, 33.1, 33.2, 33.3, 33.4, 33.5, 33.6, 33.7, 33.8, 33.9, 34.0, 34.1, 34.2, 34.3, 34.4, 34.5, 34.6, 34.7, 34.8, 34.9, 35.0, 35.1, 35.2, 35.3, 35.4, 35.5, 35.6, 35.7, 35.8, 35.9, 36.0, 36.1, 36.2, 36.3, 36.4, 36.5, 36.6, 36.7, 36.8, 36.9, 37.0, 37.1, 37.2, 37.3, 37.4, 37.5, 37.6, 37.7, 37.8, 37.9, 38.0, 38.1, 38.2, 38.3, 38.4, 38.5, 38.6, 38.7, 38.8, 38.9, 39.0, 39.1, 39.2, 39.3, 39.4, 39.5, 39.6, 39.7, 39.8, 39.9, 40.0, 40.1, 40.2, 40.3, 40.4, 40.5, 40.6, 40.7, 40.8, 40.9, 41.0, 41.1, 41.2, 41.3, 41.4, 41.5, 41.6, 41.7, 41.8, 41.9, 42.0, 42.1, 42.2, 42.3, 42.4, 42.5, 42.6, 42.7, 42.8, 42.9, 43.0, 43.1, 43.2, 43.3, 43.4, 43.5, 43.6, 43.7, 43.8, 43.9, 44.0, 44.1, 44.2, 44.3, 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 45.0, 45.1, 45.2, 45.3, 45.4, 45.5, 45.6, 45.7, 45.8, 45.9, 46.0, 46.1, 46.2, 46.3, 46.4, 46.5, 46.6, 46.7, 46.8, 46.9, 47.0, 47.1, 47.2, 47.3, 47.4, 47.5, 47.6, 47.7, 47.8, 47.9, 48.0, 48.1, 48.2, 48.3, 48.4, 48.5, 48.6, 48.7, 48.8, 48.9, 49.0, 49.1, 49.2, 49.3, 49.4, 49.5, 49.6, 49.7, 49.8, 49.9, 50.0, 50.1, 50.2, 50.3, 50.4, 50.5, 50.6, 50.7, 50.8, 50.9, 51.0, 51.1, 51.2, 51.3, 51.4, 51.5, 51.6, 51.7, 51.8, 51.9, 52.0, 52.1, 52.2, 52.3, 52.4, 52.5, 52.6, 52.7, 52.8, 52.9, 53.0, 53.1, 53.2, 53.3, 53.4, 53.5, 53.6, 53.7, 53.8, 53.9, 54.0, 54.1, 54.2, 54.3, 54.4, 54.5, 54.6, 54.7, 54.8, 54.9, 55.0, 55.1, 55.2, 55.3, 55.4, 55.5, 55.6, 55.7, 55.8, 55.9, 56.0, 56.1, 56.2, 56.3, 56.4, 56.5, 56.6, 56.7, 56.8, 56.9, 57.0, 57.1, 57.2, 57.3, 57.4, 57.5, 57.6, 57.7, 57.8, 57.9, 58.0, 58.1, 58.2, 58.3, 58.4, 58.5, 58.6, 58.7, 58.8, 58.9, 59.0, 59.1, 59.2, 59.3, 59.4, 59.5, 59.6, 59.7, 59.8, 59.9, 60.0, 60.1, 60.2, 60.3, 60.4, 60.5, 60.6, 60.7, 60.8, 60.9, 61.0, 61.1, 61.2, 61.3, 61.4, 61.5, 61.6, 61.7, 61.8, 61.9, 62.0, 62.1, 62.2, 62.3, 62.4, 62.5, 62.6, 62.7, 62.8, 62.9, 63.0, 63.1, 63.2, 63.3, 63.4, 63.5, 63.6, 63.7, 63.8, 63.9, 64.0, 64.1, 64.2, 64.3, 64.4, 64.5, 64.6, 64.7, 64.8, 64.9, 65.0, 65.1, 65.2, 65.3, 65.4, 65.5, 65.6, 65.7, 65.8, 65.9, 66.0, 66.1, 66.2, 66.3, 66.4, 66.5, 66.6, 66.7, 66.8, 66.9, 67.0, 67.1, 67.2, 67.3, 67.4, 67.5, 67.6, 67.7, 67.8, 67.9, 68.0, 68.1, 68.2, 68.3, 68.4, 68.5, 68.6, 68.7, 68.8, 68.9, 69.0, 69.1, 69.2, 69.3, 69.4, 69.5, 69.6, 69.7, 69.8, 69.9, 70.0, 70.1, 70.2, 70.3, 70.4, 70.5, 70.6, 70.7, 70.8, 70.9, 71.0, 71.1, 71.2, 71.3, 71.4, 71.5, 71.6, 71.7, 71.8, 71.9, 72.0, 72.1, 72.2, 72.3, 72.4, 72.5, 72.6, 72.7, 72.8, 72.9, 73.0, 73.1, 73.2, 73.3, 73.4, 73.5, 73.6, 73.7, 73.8, 73.9, 74.0, 74.1, 74.2, 74.3, 74.4, 74.5, 74.6, 74.7, 74.8, 74.9, 75.0, 75.1, 75.2, 75.3, 75.4, 75.5, 75.6, 75.7, 75.8, 75.9, 76.0, 76.1, 76.2, 76.3, 76.4, 76.5, 76.6, 76.7, 76.8, 76.9, 77.0, 77.1, 77.2, 77.3, 77.4, 77.5, 77.6, 77.7, 77.8, 77.9, 78.0, 78.1, 78.2, 78.3, 78.4, 78.5, 78.6, 78.7, 78.8, 78.9, 79.0, 79.1, 79.2, 79.3, 79.4, 79.5, 79.6, 79.7, 79.8, 79.9, 80.0, 80.1, 80.2, 80.3, 80.4, 80.5, 80.6, 80.7, 80.8, 80.9, 81.0, 81.1, 81.2, 81.3, 81.4, 81.5, 81.6, 81.7, 81.8, 81.9, 82.0, 82.1, 82.2, 82.3, 82.4, 82.5, 82.6, 82.7, 82.8, 82.9, 83.0, 83.1, 83.2, 83.3, 83.4, 83.5, 83.6, 83.7, 83.8, 83.9, 84.0, 84.1, 84.2, 84.3, 84.4, 84.5, 84.6, 84.7, 84.8, 84.9, 85.0, 85.1, 85.2, 85.3, 85.4, 85.5, 85.6, 85.7, 85.8, 85.9, 86.0, 86.1, 86.2, 86.3, 86.4, 86.5, 86.6, 86.7, 86.8, 86.9, 87.0, 87.1, 87.2, 87.3, 87.4, 87.5, 87.6, 87.7, 87.8, 87.9, 88.0, 88.1, 88.2, 88.3, 88.4, 88.5, 88.6, 88.7, 88.8, 88.9, 89.0, 89.1, 89.2, 89.3, 89.4, 89.5, 89.6, 89.7, 89.8, 89.9, 90.0, 90.1, 90.2, 90.3, 90.4, 90.5, 90.6, 90.7, 90.8, 90.9, 91.0, 91.1, 91.2, 91.3, 91.4, 91.5, 91.6, 91.7, 91.8, 91.9, 92.0, 92.1, 92.2, 92.3, 92.4, 92.5, 92.6, 92.7, 92.8, 92.9, 93.0, 93.1, 93.2, 93.3, 93.4, 93.5, 93.6, 93.7, 93.8, 93.9, 94.0, 94.1, 94.2, 94.3, 94.4, 94.5, 94.6, 94.7, 94.8, 94.9, 95.0, 95.1, 95.2, 95.3, 95.4, 95.5, 95.6, 95.7, 95.8, 95.9, 96.0, 96.1, 96.2, 96.3, 96.4, 96.5, 96.6, 96.7, 96.8, 96.9, 97.0, 97.1, 97.2, 97.3, 97.4, 97.5, 97.6, 97.7, 97.8, 97.9, 98.0, 98.1, 98.2, 98.3, 98.4, 98.5, 98.6, 98.7, 98.8, 98.9, 99.0, 99.1, 99.2, 99.3, 99.4, 99.5, 99.6, 99.7, 99.8, 99.9, 100.0, 100.1, 100.2, 100.3, 100.4, 100.5, 100.6, 100.7, 100.8, 100.9, 101.0, 101.1, 101.2, 101.3, 101.4, 101.5, 101.6, 101.7, 101.8, 101.9, 102.0, 102.1, 102.2, 102.3, 102.4, 102.5, 102.6, 102.7, 102.8, 102.9, 103.0, 103.1, 103.2, 103.3, 103.4, 103.5, 103.6, 103.7, 103.8, 103.9, 104.0, 104.1, 104.2, 104.3, 104.4, 104.5, 104.6, 104.7, 104.8, 104.9, 105.0, 105.1, 105.2, 105.3, 105.4, 105.5, 105.6, 105.7, 105.8, 105.9, 106.0, 106.1, 106.2, 106.3, 106.4, 106.5, 106.6, 106.7, 106.8, 106.9, 107.0, 107.1, 107.2, 107.3, 107.4, 107.5, 107.6, 107.7, 107.8, 107.9, 108.0, 108.1, 108.2, 108.3, 108.4, 108.5, 108.6, 108.7, 108.8, 108.9, 109.0, 109.1, 109.2, 109.3, 109.4, 109.5, 109.6, 109.7, 109.8, 109.9, 110.0, 110.1, 110.2, 110.3, 110.4, 110.5, 110.6, 110.7, 110.8, 110.9, 111.0, 111.1, 111.2, 111.3, 111.4, 111.5, 111.6, 111.7, 111.8, 111.9, 112.0, 112.1, 112.2, 112.3, 112.4, 112.5, 112.6, 112.7, 112.8, 112.9, 113.0, 113.1, 113.2, 113.3, 113.4, 113.5, 113.6, 113.7, 113.8, 113.9, 114.0, 114.1, 114.2, 114.3, 114.4, 114.5, 114.6, 114.7, 114.8, 114.9, 115.0, 115.1, 115.2, 115.3, 115.4, 115.5, 115.6, 115.7, 115.8, 115.9, 116.0, 116.1, 116.2, 116.3, 116.4, 116.5, 116.6, 116.7, 116.8, 116.9, 117.0, 117.1, 117.2, 117.3, 117.4, 117.5, 117.6, 117.7, 117.8, 117.9, 118.0, 118.1, 118.2, 118.3, 118.4, 118.5, 118.6, 118.7, 118.8, 118.9, 119.0, 119.1, 119.2, 119.3, 119.4, 119.5, 119.6, 119.7, 119.8, 119.9, 120.0, 120.1, 120.2, 120.3, 120.4, 120.5, 120.6, 120.7, 120.8, 120.9, 121.0, 121.1, 121.2, 121.3, 121.4, 121.5, 121.6, 121.7, 121.8, 121.9, 122.0, 122.1, 122.2, 122.3, 122.4, 122.5, 122.6, 122.7, 122.8, 122.9, 123.0, 123.1, 123.2, 123.3, 123.4, 123.5, 123.6, 123.7, 123.8, 123.9, 124.0, 124.1, 124.2, 124.3, 124.4, 124.5, 124.6, 124.7, 124.8, 124.9, 125.0, 125.1, 125.2, 125.3, 125.4, 125.5, 125.6, 125.7, 125.8, 125.9, 126.0, 126.1, 126.2, 126.3, 126.4, 126.5, 126.6, 126.7, 126.8, 126.9, 127.0, 127.1, 127.2, 127.3, 127.4, 127.5, 127.6, 127.7, 127.8, 127.9, 128.0, 128.1, 128.2, 128.3, 128.4, 128.5, 128.6, 128.7, 128.8, 128.9, 129.0, 129.1, 129.2, 129.3, 129.4, 129.5, 129.6, 129.7, 129.8, 129.9, 130.0, 130.1, 130.2, 130.3, 130.4, 130.5, 130.6, 130.7, 130.8, 130.9, 131.0, 131.1, 131.2, 131.3, 131.4, 131.5, 131.6, 131.7, 131.8, 131.9, 132.0, 132.1, 132.2, 132.3, 132.4, 132.5, 132.6, 132.7, 132.8, 132.9, 133.0, 133.1, 133.2, 133.3, 133.4, 133.5, 133.6, 133.7, 133.8, 133.9, 134.0, 134.1, 134.2, 134.3, 134.4, 134.5, 134.6, 134.7, 134.8, 134.9, 135.0, 135.1, 135.2, 135.3, 135.4, 135.5, 135.6, 135.7, 135.8, 135.9, 136.0, 136.1, 136.2, 136.3, 136.4, 136.5, 136.6, 136.7, 136.8, 136.9, 137.0, 137.1, 137.2, 137.3, 137.4, 137.5, 137.6, 137.7, 137.8, 137.9, 138.0, 138.1, 138.2, 138.3, 138.4, 138.5, 138.6, 138.7, 138.8, 138.9, 139.0, 139.1, 139.2, 139.3, 139.4, 139.5, 139.6, 139.7, 139.8, 139.9, 140.0, 140.1, 140.2, 140.3, 140.4, 140.5, 140.6, 140.7, 140.8, 140.9, 141.0, 141.1, 141.2, 141.3, 141.4, 141.5, 141.6, 141.7, 141.8, 141.9, 142.0, 142.1, 142.2, 142.3, 142.4, 142.5, 142.6, 142.7, 142.8, 142.9, 143.0, 143.1, 143.2, 143.3, 143.4, 143.5, 143.6, 143.7, 143.8, 143.9, 144.0, 144.1, 144.2, 144.3, 144.4, 144.5, 144.6, 144.7, 144.8, 144.9, 145.0, 145.1, 145.2, 145.3, 145.4, 145.5, 145.6, 145.7, 145.8, 145.9, 146.0, 146.1, 146.2, 146.3, 146.4, 146.5, 146.6, 146.7, 146.8, 146.9, 147.0, 147.1, 147.2, 147.3, 147.4, 147.5, 147.6, 147.7, 147.8, 147.9, 148.0, 148.1, 148.2, 148.3, 148.4, 148.5, 148.6, 148.7, 148.8, 148.9, 149.0, 149.1, 149.2, 149.3, 149.4, 149.5, 149.6, 149.7, 149.8, 149.9, 150.0, 150.1, 150.2, 150.3, 150.4, 150.5, 150.6, 150.7, 150.8, 150.9, 151.0, 151.1, 151.2, 151.3, 151.4, 151.5, 151.6, 151.7, 151.8, 151.9, 152.0, 152.1, 152.2, 152.3, 152.4, 152.5, 152.6, 152.7, 152.8, 152.9, 153.0, 153.1, 153.2, 153.3, 153.4, 153.5, 153.6, 153.7, 153.8, 153.9, 154.0, 154.1, 154.2, 154.3, 154.4, 154.5, 154.6, 154.7, 154.8, 154.9, 155.0, 155.1, 155.2, 155.3, 155.4, 155.5, 155.6, 155.7, 155.8, 155.9, 156.0, 156.1, 156.2, 156.3, 156.4, 156.5, 156.6, 156.7, 156.8, 156.9, 157.0, 157.1, 157.2, 157.3, 157.4, 157.5, 157.6, 157.7, 157.8, 157.9, 158.0, 158.1, 158.2, 158.3, 158.4, 158.5, 158.6, 158.7, 158.8, 158.9, 159.0, 159.1, 159.2, 159.3, 159.4, 159.5, 159.6, 159.7, 159.8, 159.9, 160.0, 160.1, 160.2, 160.3, 160.4, 160.5, 160.6, 160.7, 160.8, 160.9, 161.0, 161.1, 161.2, 161.3, 161.4, 161.5, 161.6, 161.7, 161.8, 161.9, 162.0, 162.1, 162.2, 162.3, 162.4, 162.5, 162.6, 162.7, 162.8, 162.9, 163.0, 163.1, 163.2, 163.3, 163.4, 163.5, 163.6, 163.7, 163.8, 163.9, 164.0, 164.1, 164.2, 164.3, 164.4, 164.5, 164.6, 164.7, 164.8, 164.9, 165.0, 165.1, 165.2, 165.3, 165.4, 165.5, 165.6, 165.7, 165.8, 165.9, 166.0, 166.1, 166.2, 166.3, 166.4, 166.5, 166.6, 166.7, 166.8, 166.9, 167.0, 167.1, 167.2, 167.3, 167.4, 167.5, 167.6, 167.7, 167.8, 167.9, 168.0, 168.1, 168.2, 168.3, 168.4, 168.5, 168.6, 168.7, 168.8, 168.9, 169.0, 169.1, 169.2, 169.3, 169.4, 169.5, 169.6, 169.7, 169.8, 169.9, 170.0, 170.1, 170.2, 170.3, 170.4, 170.5, 170.6, 170.7, 170.8, 170.9, 171.0, 171.1, 171.2, 171.3, 171.4, 171.5, 171.6, 171.7, 171.8, 171.9, 172.0, 172.1, 172.2, 172.3, 172.4, 172.5, 172.6, 172.7, 172.8, 172.9, 173.0, 173.1, 173.2, 173.3, 173.4, 173.5, 173.6, 173.7, 173.8, 173.9, 174.0, 174.1, 174.2, 174.3, 174.4, 174.5, 174.6, 174.7, 174.8, 174.9, 175.0, 175.1, 175.2, 175.3, 175.4, 175.5, 175.6, 175.7, 175.8, 175.9, 176.0, 176.1, 176.2, 176.3, 176.4, 176.5, 176.6, 176.7, 176.8, 176.9, 177.0, 177.1, 177.2, 177.3, 177.4, 177.5, 177.6, 177.7, 177.8, 177.9, 178.0, 178.1, 178.2, 178.3, 178.4, 178.5, 178.6, 178.7, 178.8,

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Liriodendron agrifolium
 Little Apateta? on live oak, Watsonville, Apr 17, 92.
 Hd 4, pale brownish, the clypeus nearly white.
 Body with venter small, apparently normal, con-
 colour, each bearing several black hairs, most
 short but a few near ends, long. Entirely
 pale brown, with a whitish dorsal shade
 through the center of which run a brown line.
 Cbh, 5 dorsally and 13 shaded blackish
 last

345

Differs from 263 in that the blue does not go above
 the lateral line, thus not absorbing the s & d blue
 dots as it does in 263, and not forming a sub-
 quadrata black spot of the space between the
 dots. Moreover there is in 345 a broken dorsal
 bluish line, more or less well developed, but
 sometimes absent. One began to corn May 10, corn
 as usual of yellow silk, thin, oval. Pupa.

347

(Pupa cont.) line like an eyebrow; between them two
 small dots, ant. of which is a median dash & post.
 two black angular marks. On the abd. is a series
 of conical pale orange tubercles, representing the
 spines of the larva, as follows: - On dorsal series on
 abd. joints 2-10, ② a s-d series 1-9; ③ a lateral row 2-10
 ④ a s-v row 5-9 & ⑤ a double row below this 5-8,
 hardly more than spots besides a few ^{obscure} orange
 ventral spots. Rows ⑥-⑧ are each bordered on
 the ant. side by a curved black line and there
 is a transverse row of black dots on each seg.
 somewhat confused & confluent on the small
 terminal segments. L. 17 mm w 6 mm.

[342] ^{Hd L} Th. Thorax small, legs slender, antennae small,
 shortly bifurcate; wings aborted, but fully 5 mm long,
 narrow, venter clothed with sordid white hairs mixed
 with a few black scales. Abd. very large & robust,
 covered abundantly with white down below,
 obscurely banded with cinereous segmentally.
 Back thinly clothed with sordid white down,
 the dorsum of the body showing through is a
 broad pale cinereous band on both thorax &
 abdomen. W thorax 3 mm. W abd 9.5 mm Length
 of this 3, of abd 15 mm. [V] Same but more hairy on
 back so that there was not a perceptible band.
 Quite cinereous beneath, even a little brownish
 [VII] was dark cinereous with a brownish tinge

Melitaea on snowberry Watsonville. Apr 17, 1892.
^{species of lobes angulated}
 Hd. black, roughened with many hair bearing
 tubercles w 2.5 mm Body black, densely
 covered with white granulation which
 bear numerous short white hairs. Spine
 short, conical, densely covered with
 black bristles, the shafts black except
 the dorsal one on 5-12 ^{and the short spine of arow (5) (6) on} which are orange.
 A black dorsal line & 3 transverse lines
 per leg caused by the distribution of the
 white granulation. Below each spine
 (3) on 5-12 an orange spot. ^{on 5-12}
 Feet black, the ends of the abd. ones greenish.
 Ovipositor Abd. much bent forward so that cremaster
 points at rt 13 mid body, tapering, thorax sloping
 back from head rounded, enlarged a little post.
 Case well developed; eyes prominent. Color pale
 ashy green, nearly white, cautiously marked with
 black & gray-yellow as follows. - Antenna & tongue cases
 black with a curved black band from base to
 int. 2, interrupted by yellow on the veins. A row of
 mag. & sub. mag. black annular spots edged with
 yellow above the band & 4 or 5 spots below it,
 2 sub. mag. the other median. A few black spots
 on abd & collar. A pair of sd elevated yellow spots
 on thorax, each surrounded by a curved black
 line. May 21, 1892. Melitaea chalcid on

Eggs Portland Oregon, probably of Noctuid A (see cat.)
 Shaped like upper $\frac{2}{3}$ of sphere, base flat.
 covered with vertical striations. Color shiny
 pale green, diam. .6 mm. Under the microscope
 these are seen to be formed by irregular grooves
 which become less numerous toward the
 micropyle by some becoming confluent. Their
 edges are fluted as if they were formed
 by a series of contiguous confluent punctures.
 Egg from body of noctuid A can not be distinguished
 [Apr. 23 got a few more which were the same] ^(sh. hd. 3)
 Hatched May 5 Hd slightly bilobed, black, shiny.
 Body whitish with minute black fuliginous dots. The
 feet a c-sh black; anal plate & abd. feet blackish.
 Feet normal, but they loop slightly in walking, &
 the 2 ant. pair of abd. feet seem less used than the
 others, the pair on j. 7 being smaller. 12 a little enlarged.
 May 8 ate maple. Molt May 12 Hd same w .5 mm Body
 brownish green color the feet black, abd. dots large
 black, setae ^{single} short fine. Anal plate blackish. Feet
 nearly normal. Faint trace of a greenish sd line
 (Then threw out May 27)
 Dead hd 9

Egg 11 d, I 4 1/2 d, II 9 2/3 d, III 4 3/4 d, IV 3 1/3 d, V 5 1/2 d

Chd May 25 1892

195. 349 SIXTH ST.

Egg from ♀ *Phaenocarpa portlandensis*, Portland e-light
Apr 23, 1892. Hemispherical, base flat, non
lustrous whitish green. diam. 1.2 mm

Under microscope densely covered with
minute white granulation except at the
micropyle where is a single larger gran.
surrounded by a pale green ring from which
the gran. are absent

The gran. are largest at the base
and become slightly more
micropyle, & diminish in size
towards the base of egg becoming
very minute & almost lost in the under side.

Hatched May 4, 6 AM. Hd slightly bitubed, black & shiny
labrum paler, slightly whitish; a few pale hairs; w. 1.6 mm
(sh. hd. .65)

g12 is hardly perceptibly enlarged dorsally: body cylindrical
diminishing a little in size post. No trace of caudal horn*

Body pale white, ^{C-sh & black} the feet black, abd feet, except the last
pair blackish outwardly. Setae on dots, concolorous,

setae pale short. * Feet normal, anal pair ^{is walking} used
Hatched by eating a hole in side of egg. Rested on upper
side of willow leaf & began to eat a minute. May 4, 9 AM.

^{as at adm. the} 5:30 PM. Anal plate pale abd. feet outwardly & piliferous dots become
brown-black. Setae large & distinct ① & ② almost in line

③ lateral, ④ & ⑤ subventral, smaller. 12 becomes more enlarged d.
When at rest the extremities are raised, the tho. & anal feet being lifted off the leaf

On 5-12, single dorsal large one on 2, two in line on 13. ^{but}
the single d. black spot on 12 has two setae arising from it, but
on May 6, 9 AM, its appearance had not changed (no purplish patch).

Assumes a greenish color by noon May 6. May 7, 6 AM 2 headed;
a faint purplish shade around dorsal dot on 12 & some S-V purplish spots

May 8, 12:15 PM. Hd head bilobed, rounded, narrowing a
little to vertex, ^{upper surface of} 4th depressed. Jan. & ocelli black
Smooth shiny ^{green} with a few hairs; w. 1 mm. (sh. hd. 1.0)

Body slender, cylindrical, with a short rounded-con-
ical process on 12 dorsally, bearing the 2 setae of ① almost at
its vertex. Other setae fine, blackish, situated as before

Hairs all barbed, but the white ones have the barbs much smaller & rudimentary, while the shafts of the hairs are more slender.

Found at Willamette Heights, Portland, May 1. on all sorts of weeds in the open. Not in the woods.

The extent of red hair is somewhat variable, but not greatly. Some have the s-x hair* on all the segments partly, partly red; the hair from warts ① & ② on the venter are all red.*

In some, before last molt, the long hairs are not so abundant, white even among the black ones.

Warts ① large ant. ② large, rd. ③ elongate ④ large lateral ⑤ & ⑥ large, s-x, all except ① nearly on a transverse line & close together, ① & ② on venter of 4, 6, 11, 12 & 13 ant.

Just one room June 1. One began to room May 8. Great room in corner of box, of silk with the hairs mixed in. thick do. ex.

* Another larva red on 2-6, 11-13, 7 & 10 ④⑤⑥, 8-9⑤⑥.

Pupa before May 12. Sh. Hair nearly as hairy as larva. But few hairs shed in room. Pupa cylindrical, long, strong. Small, cases large but only slightly prominent. Abd. slightly tapering segs. capable of motion, excreta blunt, rounded, mixed with a bunch of stiff bristles which adhere to sh. hairs. Color partly black, except in 3 movable abd. increases where it is yellowish white. Several rows of rounded granular areas bearing short stiff pile represent larval warts 20 W 6.

Since June 6, 192, Cal. no. 7463 *Epicalia virginalis*

43 72 1.2 95 2.0 vol. 60
C. 4 .6 9 1.4 2.1 3.2 vol .66
4 .4 .65 1.1 1.4 2.1 3.2 EGGON
cherry apple poplar willow
352

Calioecampa 1958 **ST. C. erosa** Str.

Oregon, May 4, 1922. Egg mass around twig covered with
PORTLAND, OREGON.

warmish - over winter. Egg: irregularly cylindrical, flattened above & below, dark, packed in the mass. white, but smeared with the dark brown froth.

Diam 5, height .8 mm. Under 1/2 in. obj., perfectly smooth.

First stage. Hd rounded, shiny black, whitish at vertex. Body cylindrical, velvety black, except an obscure paler subterginal line. Long whitish hairs arise from minute black warts, several from each, but with a shiny base to each hair.

Second stage. Hd higher than wide, rounded, black; w. .65 mm. Cth. warts & the feet black; body blackish with sd lat. & subterg. yellowish white lines. Hair long, thick, white, spreading from the small warts. A faint dorsal line of bluish white. 12 a triple enlarged. Molted and got 2nd stage May 7. (Sh. led. 7-)

3rd stage. Hd as at 2nd stage. May 7. (Sh. 3, 4, 12 a large sd elevated velvety black spot). Body blue gray, red, lat. & ss sd. when yellow line, the sd with a broad black band above it, leaving a d. band & the ground color. The lateral region is brown-gray.

They open our nest but which web over the leaves they are eating and the adjoining stems. Hair long.

Calc. .43 .62 39 1.27 1.82 2.6 rat. .70
 Found .5 .65 .9 1.2 1.8 2.2
 Calc. 1.82, 2.18, 2.6 rat. .84
 353 = 296?

Eggs of *Spilsoema vestalis* Albin (leg. May 19)
 nearly spherical, but flattened at base, smooth
 shining white, faintly tinged with yellowish
 diam 1.1 mm. Underneath is shy, still smooth.
 Hatched June 16 Hd & c. sh very pale, largely tinged with brown,
 ocelli black, mouth brown. Body white, except corners
 with single very long black hairs. w. hd .5 mm. blackish
 of 3 coarctate each side median suture. L on holding 3 mm
 ant 10 ant 5-12 the hair @ angle long hair, 4 hairs from c-sh side
 351 evident. Hairs some black, some white, minutely barbed
 later white blackish. He goes
 June 22 Hd pale whitish, ocelli black, mouth brown w 7
 body whitish, pale, with blackish, hair long, abundant
 blackish. Row of s-d horn spots between ant 9 & 10, obscure
 red grayish. Blackish on vertex.
 July 30 Hd pale whitish, blackish on vertex, each side
 blackish brown, ocelli black, as 10 mm. Body whitish with a
 reddish brown s-d line, larger, mottled with blackish
 reddish brown, a whitish d line. Slight blackish
 mottling laterally. Ant 10, only slightly blackish,
 hair long, black & whitish mixed. Feet blackish entirely
 the other feet shiny black. Later s-d line orange, seen within
 a space below 2 on 12.
 July 31 Hd 5 mm Same. w. hd .12 mm (sh hd 1.2)
 July 31 Hd 5 mm pale brown, largely shaded with black & pale
 of 10 & centrally on clippers, mouth dark brown; w 1.7 mm
 Body mainly black dorsally, more mottled with pale laterally,
 a narrow whitish d line & trace of an orange s-d band
 mainly all pale. Hair dense, of immensurable length, black & pale mixed.
 Aug 18 Hd 2.2, pale brown arching rather obscurely, largely
 black, shiny. Body black, but mottled on sides & pale below
 d line gone, s-d pale, orange tinted. Hair pale. Hair black
 on 1-3. Pale from the s-v warts, very faintly reddish.
 Oct 22 Hd 2.2 sh hd 1.75 mm. Same, more dark. s-v hair dist
 reddish, s-d hair quite black. (sh hd 1.75) (sh hd 1.85) (sh hd 2.1)
 Nov 7 Hd 2.5 sh hd 2.2 mm Same. Hairs lines to be seen
 (then from May 4, all dead but one red
 that badly sick) Must be 296

Calc. .82 .46 .67 .96 1.4 1.96 2.8 4.0 ratios .70
 Found 2.0 2.8 4.0
 1 crashed on sidewalk
 at Tacoma Wash 354 * 3 colored hair all short, thick
 whole length tips pointed: hair
 short rather irregular in dist.
 Euprepia on fern (leaves) Mt. Tabor, Portland Oregon
 May 23, 1892. Hd shiny black, bases of ant. yellowish
 w. m. body black, spiracles white, abd. feet
 pinkish at tip. Hair from 2, 3, 4 & partly from 5,
 from 4-6 (2-3) on 6-13 foxy red, * from 1-3 on
 6-13, partly also on 5 - black, besides other
 longer, but equally stiff & bristly white hair
 with a yellow stain along the middle of each
 from 1-5 on 3-13 but shorter & less numerous
 on 3-5 and laterally on all segs. The long &
 white hairs are about 11 mm long. They stick
 out straight & do not keel or comb backwards
 at all, as do the white hairs in 351.
 Little one (sh hd 2.0) m. May 26 - like above
 now all hair red, except a few hair
 on 11-13 dorsally, but mixed with the stiff white
 ones, each with its yellow stain before the end.
 Molt May 29 (sh hd 3.0) Same. Hd 4? white hair less
 stiff, a little keeled together & directed back,
 but they grow principally from 1-3 and very
 few from 4. Pure white. Later a bare ant-
 reddish. Spiracles distinct white. Hair still
 stiffer than 351 but not perfectly straight any more
 later become stiffer & tinged with yellow again. (see
 June 25. com of scale & hairs, appears to be 351 but with more
 hair on body & legs. Pupa on July 3. Traces July. E. caja

Calc. .51 .91 1.65 3.0 rat 53
 Found .50 .85 1.8 3.0

Seems to grow June 12 maybe even just
 like the larvae which it makes at
 end of each instar.

~~Chalcid~~ ~~Chalcid~~ ~~Chalcid~~ ~~Chalcid~~ ~~Chalcid~~
 Hd. rounded, shiny black, few hairs. W. 5 mm. Body
 somewhat flattened with long pale hair rising
 singly from large concolorous tubercles. Sordid
 grayish tinged with dark vinous on 2, 5, 7, 8, 11
 & 12 on the dorsum. The feet dark, abd. round
 cell used, concolorous with the body, waxy white
 spaces on 3-4, 5, 9-10 become more white, other pubescence dots
 come out black & distinct apparently normal. (sh. hd. 85)
 May 29 Hd rounded, shiny black W. 9 mm. Body
 flattened, sordid black. Ab. tubercles large, concolorous
 setae black short. Red dark blackish vinous except
 dorsum of 3, 4, 6, 9, 10 & 13 which is greenish white
 containing ① and a very fine d line. Anal plate (i.e.
 joint 12) is vinous. Lateral s-s tubercles pale.

The feet black. Lateral tubercles black. Hd. 6 mm. Body
 June 6 Hd. rounded, median suture deep.
 shiny black, hairy, W. 1.8 mm. (sh. hd. 1.8)
 Each with a hair, & other somewhat shorter hair
 arise from the body. Body vinous black, with pale
 yellow dorsal patches on 3, 4, 6, 9, 10 & 13 and
 enclosing ① & ②. A dark d line each side of which
 are a few yellow anastomosing on the dark seg.
 s-v warts largely yellow. Other warts co-

① & ② orange on all the segs but 2 & 4, but very small
 & inconspicuous. + spots on all segs. none dist on 3-5
 + orange spreading from warts ① & ② & adjacent anastomosing,
 barely confluent.
 Oloron with mottling except ① which is
 dark on the yellow segs. Setae all blackish.
 The warts bear several hairs, but only one is long.
 The other shorter & arises more from the base.
 Late a narrow broken wavy line along ① in yellow
 5 & 12 a little enlarged dorsally. yellow patch on
 9 & 10 extends faintly onto 11. A yellow broken anastomosing
 super stig. line, dist. only on yellow segs, & some rather
 more continuous yellow mottling along sub-stig. ridge.
 Molt June 14 Hd rounded, clypeus depressed, median
 suture deep. Hair short, dense, white: black.
 slightly shiny, brownish centric in the depressed
 around med. suture; W. 3.0 mm. Warts rather
 large ① & ② on 3, 4, 6, 9, 10 & 13, & the s-v warts
 whole length yellow, others black. 5 & 12 enlarged
 d. Body purplish black, a broad dorsal yellow
 band the whole length except on 2, 5 & 12, con-
 taining a broken triple d. line & fainter on 7, 8
 and 11. 5 & 12 velvety black st. Red of body purplish
 black, the s-v region included except its warts.
 Hair dense white, fine short hair from the
 body with single, slightly longer & stiffer ones
 from the warts, much as in batana. Late
 body light, irregular broken super- & sub-stig. yellow
 line, velvety black spots. Lateral on 3, 4 & 5. Late
 broad pale gray d-band very faint triple d. dist. line
 blackish brown, warts of ① on 3, 4, 6, 9, 10, 13, & s-d line
 pale black band heavily mottled with various black
 5 & 12 d & lateral spots 3 & 5 black, broad broken
 dist. orange stig. band & divided by an irregular black

Calc. 4 6 9 1.4 2.1 3.2 wt. 66

C. pluvialis

cf. pluvialis 31
192

at Tacoma Wash

Collected at Victoria B.C.

from apple, but later all gone

356 = C. fragilis from spec. in coll. (Prof. Johnson)

Collected on apple East Portland, Wash. June 3, 1892

Matife. Head hairy, bluish gray, spotted with black, the spots aggregating in center in two lines in

or is nearly all black. Labrum & base of ant. yellowish white.

same spec. w. 32 mm. Body a little enlarged at 12,

Barrell as in other species. Hair nearly absent on

dorsum, 2-V short, not abundant reddish

Body black, a blue d-line, dineded bet segs, a

forming 9 narrow elongate blue spot, each

tapering post. & ant. on segs; a 2d row of blue

dots, 2 per seg. the post one smaller, & not reaching

quite so far down. Between these are many band

advised to a small spot on the end. post. of each

seg either broken or connected with a broad

triangular widening of the band on the post.

part of seg. Markings reduced & confused on 2, 3,

12 & 13. A distinct, but rather irregular, pale orange

lateral band, narrowly broken here & there & con-

taining a few black dots. Below this a slight suffusion

of blue, mottled with black, & a diffuse & mottled

pale orange, submarginated band & another along bases

of legs. Abd. feet tipped with pale orange

Below black with a double diffuse and

mottled bluish band, the feet black. ✓

On some the region below sd band is large, irregular with orange, mottled with the ground color, but as just below sd band as that the band is defined.

Sub-

The dorsal orange band is very conspicuous. It may

extend from near dorsal line to below & behind

the sd blue dots & also in front, but is usually

less on the ant. part. & always retracted centrally;

hair not thick, though in some cases abundant all over

reddish both on back & sides. Its dorsal edge well

defined, a little curved following the outline of the

blue dorsal dots, but always separated from them

by a black space, sometimes nearly surrounding them

by connecting over the dorsum post. on segs. Its

lateral edge is irregular & somewhat mottled.

On legs to lower half of yellow side as usual in the

genus. Inside on apple leaf. Pupa cylindrical, the

cases small, abd. larva small, tapering

after 6th seg. the last pointed but not with a rounded

without overmaster. Color black, heavily shining, covered

sparsely with reddish pale except on cases 120 W 7 mm

very common on alder Lake Union, Seattle, Wash. Nest in

rotting of alder, of web full of dirt & dead larvae, etc.

Size 130 mm long, 90 broad at top, hollow with

drinks of aque. Stage before last on alder & willow

same but 2.2 Hds 2.3, 2.8 Sh hd 2.2, 1.7, 1.7 Redd. black

hairy w. l.b. Body black, broken d. blue line each side of which

2 pale orange spot per seg. post. largest & irregular. S. suffuse

& mottled pale orange sd line & many irregular lateral orange

.38 .54 .77 1.1 1.57 (1.88) 2.25 (not .70
Found 4 .6 .8 1.1 1.5 1.75 (not .836)

3570 L NO. 13 892

Eggs of *Hesperia menodensis* from J. B. Lambert Yosemite
Cal. Subconoidal, flat at base, smooth
shiny, pale yellow; diam .8 mm. Laid
loose in paper. Under 1/2 in obj. perfectly smooth.

Shell transparent, head [✓] con, hair curved spirally,
Hatched June 2 Hd slightly bilobed, black, shiny, w. 4
Body normal, whitish, c-sh. black. Hair curved spirally,
single from the concolorous warts, black. Later

the warts become black large & distinct, June 14 body
very pale brownish. Ate grass & clover ✓

July 19 June 19 Hd bilobed, shiny, light brown, eyes
black; w. 6 mm. Body very pale brown, with an obscure
slightly whitish d. line, warts large with many
long spreading blackish hairs. C-sh. & warts black
There is an appearance of s-d line by contrast of pale
ground with warts (D & E) as seen with the glass.
Blackish at vertices of lobes & round mouth.

July 28 June 28 Hd bilobed, shiny, pale brown, black in
front centrally & on warts, ocelli large, black w. 8 mm
Body brown with a rather broad whitish d. line
warts very large, black, with abundant long
spreading black hairs, especially long from
C-sh. shiny blackish brown, with half a dozen
very long white hairs from 12 & 13. The feet black
Runs to hide under leaves (shd 1.8)

July 4 July 6 June Hd same, w. 1.1 mm. Body same, d. line
thick & even, well defined, nearly white. The brown
color of body is somewhat mottled on the sides.

Later the body becomes quite dark, nearly black.

July 16 Hd shiny pale brown, black on outline of
lobes in front, w. 1.5 mm. Body warts & hair all
black except a narrow & rather faint reddish
d. line. Broken in the seg. in a narrow. Hair mostly
stiff & hooked, of irregular length. Body pale in
inner & ventral, and feet pale, the black.

July 23 Hd pale brown shiny, black over all
vertices of lobes & in front back side of anterior
segment & around ocelli; ant. & mouth pale brown
w. 1.7 mm. Body blackish brown, mottled with pale
with an obscure reddish brown dorsal band
& with deep black tuberculate hair short, but
dense, mostly ant. hooked, mostly pale from 6
A few very long white hairs (about 4) from 12 & 13.

July 24 July 24, sh. hds 1.4, 1.4; July 25, sh. hds 1.4; July 26 dead, hds 1.45
Later body & hair entirely deep black above, no trace
of hair reddish, body paler below, long pale hair
from 12 & 13 mostly projecting beyond (July 25)
(July 26 dead July 27 dead hds 1.75, 1.75 mm. One of them was
two headed but died)

① This larva hatched & molted July 8, 36. Hd 2.1 mm. Hd shiny black. Hd from corn 3.0

Plummed - hairs. On 4-8. 1 inch like ^{or much black} ~~hairs~~ of hair from ①. Upper part of ② pale brown on 5-6, yellowish & smaller on 7-8. Mark ① & ② black, ③ + ④ whitish, ⑤ minute, ⑥ blackish. (Sh hd 2.1 mm, Hd shiny black, labrum yellow. Body

solid white d. on 2-4, narrow black d. broadly black on 5-8 & more narrowly on 9-13. Lateral area dark gray & on 13 d. below pale. Solid. ^{pale} abd. grayish. On 7 d. some orange streaks. Hair ① pale orange, ② yellowish, ③ dark black, ④ + ⑤ brownish or black. Brush tufts on 5-6 white, on 7-8 pale yellow. Pencils about 1.5 mm long, the one on 12 preceded by some shorter but equally black hair. Other hair blackish & yellow mixed, the yellow largely predominating on 3 & 4 dorsally. Red tuberc. orange red. [See trace of wing lateral black pencil.]

B 5 Not furnished, black. Hd 2.1 mm. Hd shiny black. Labrum white. Body colored as before. Solid, the gray lateral area defined above & below by a pale yellow & d. 1-5 line, the upper one most distinct on 11 & 12. The pale d. marks are more reddish. The orange mark on 9 consisting of a small area surrounding each mark of ① & ②. Mark ① - ③ pale orange except ① & ② on 5-8 which are black; ⑤ yellowish. Pencil square, dark black, 2 mm.

Shade 2.1 and black & white brush tufts. (a slight white pencil from ③ on 5) on 5. (a slight white pencil from ③ on 6, slighter & less distinct than the other). Brush tuft all pale yellow, the 2 post. ones smaller. Other hair largely yellowish, the larger ones black. Venter pale gray; all feet whitish. Head color.

B 6 July 5. Hd shiny black, clipping paler, base of ant. & mouth whitish; w. 2.8 mm. Plummed pencils on 2 & 12 3 mm., black pencil from ③ on 6 about 1.5 mm, scarcely plummed, white pencil from ③ on 5 slight, about as long as the one on ⑥. Brush tufts all white, the 2 post. ones rather smaller; other hair white & black mixed. Body dark gray with a few yellow marks d. on 3 & 4, separated by a narrow black d. band; a sd yellowish line posteriorly & on obscure 1-5 line. Ground 5-8 broadly black, narrow black also 9-12. Venter of ① on 9 & 10 orange minute.

② orange except on 5-8, ③ large orange, ④ large pale yellow. Venter & feet pale. Red tub. coral red.

B 4 (Sh hd 1.55) Hd as in stage III. Pencils over 1 mm long. Black brush tufts on 5-6 brownish on 7-8

③ white. Venter colored as in V. Hair black & white. (From July 10, 36, in 5. Hair 4 and then in 3, the latter shaded) Hd about 2 mm. no trace of lateral tuft

A 6 & 7 Hd 2.5 mm. Hd shiny black. Labrum white. Pencils 4 mm, no trace of lateral one on 5 & 6. Body, very dark gray laterally, marked with black

Calc. .44 .66 1.0 1.5 2.3 3.5 rat .66.
 Formed .5 .7 1.0 1.5 2.3 3.4

360

Egg from *Halimelota* ^{alsin} ~~maculata~~? *Halimelota*, B.C.
 laid July 2, 1892. Obtusely conical, much flattened
 above, smooth, ^{greenish} white; diam 1.0 mm.

and in some lots side by side not touching.
 Hatched before July 2 Hd black & shiny, ^(shld .5) w. 5 mm Body
 greenish white, csh. anal pl. & warts black; feet
 blackish. Warts apparently normal for Hal., ①, ②.

③ & ④ very short, none other to be made out. One hair
 from each. A deep black vertical line on the outside
 of each foot, both the abdominal.

July 10 Hd shiny black, labrum white, ^(shld .7) w. 6 mm
 Body pale yellow with a trans black band on 5 &
 11 and some d. bands on 12. Warts of ① & ② concolorous
 the lateral ones black. The feet black, anal with a
 black ^{vertical} line outwardly. Hair long, overlapping the
 extremities, whitish, with a few shorter black
 ones from 5 & 12 and in some also from 6 & 11.

July 20 Hd same, ^(shld 1.0, 1.1) w. 1 mm. Body, pale yellow,
 black on ^{l.d.m} 5 d. lat, on 11 lat & 12 d. Warts long,
 concolorous. Hair yellowish white, black on 5 &
 12 d. & a few on 5 lat, with 6 bright red d.
 tufts on 5-11. Hair mostly of even length, but
 a few much longer white ones arise from

*the labrum is white, but can be attracted up
 so as not to show.

the extremities (i.e. 2-5 & 12-13 from ①-③) Red
 tufts from upper side of ① only. Warts normal, ④ minute
 Another had all warts 2-5, 11-13 black, with the body
 around them & hair largely black & long white ones
 9/10 July 24 Hd shiny black labrum & bases of ^{slightly} ant.
 whitish, ^(shld 1.50, 1.55) w. 5 mm. Body pale yellow except near
 some of the black warts. Warts concolorous with body,
 but black where the hair is black. Hair dense,
 spreading & long, especially at extremities, of a
 pale yellowish, but the 5 & 12 longer hair nearly
 white. On 5 & 12 a black d. keeled tuft, with
 black hair shots from ① & ③ on 5, ① & ② on 11 &
 from ② on 12. On 6-10 a series of five dorsal keeled
 tufts of vermillion hair. Another black 2-5, 11-13, & long white
 hair in the black. Red square tufts 6-10. Two others had
 only black tufts d on 5 & 12 & orange tufts 6-11.

July 30 Hd entirely shiny black, ^(shld 2.32, 3.24) w. 2+ mm. Body
 white concolorous with the hair. Center ^{clear} yellow with
 a slight orange tint, to yellow & orange mixed, varying
 from 3 segs (7-9) to 8 segs (5-12) in extent, but the
 dorsal tufts are deep bright red on 7-10 (or 7-9 where
 parts are enclosed in the black while the tufts on
 5, 6, 11 & 12 are black on those where the yellow is
 extensive) Ends black 2-6 & 10-12 or only on

*much color of *P. scabellus*

2-4 & 13, with thin pencils of long white hair from nearly every joint, some very bright.

[On the very black one, 2-6 and 11-13 completely black, 10 nearly all black while the d. tuft on 7 was largely black and on 9 partly so, leaving only the one on 8 red; but the central hairs were mixed with red.]

2 immatures July 31, black 2-6, 11-13, central hairs orange, & on 7, orange, largely orange-red in the other, the 4 d. tufts black. The middle ones on 8 & 9 containing some red hairs. Their shed sides had the d. tufts red as others.

As compared with *maculata* at Lathrop, same age. Hair deeper yellow, more orange, & central d. tufts orange-red. Markings on one exactly same, except that the black tuft

⑤ 5311 does not project at all like a pencil as it does in *maculata*. The one July 6 (sh. July 19) ends & 3 tufts black with fine white pencils, central hairs bloody red, all fine dark crimson.

Nov 6 Aug 6 (sh. July 2.5) Hd black, labrum & ant. white w. 3.5? mm. Body black at ends, blackish centrally, tan black, except 7-9 where it is reddish golden yellow* with a few black hair representing the d. tufts. White pencil long & numerous from the black parts. Feet pale. Hair dense & soft.

Aug 8, 2 shed with red tufts got orange 6-11 & 7-10 respectively, the former with 6 distinct black tufts, the latter with mere traces of 4, only a very few black hairs. Red all black in both, spiracles white, ant. feet pale.

Sept 10 shed by 12 had golden yellow 6-10, black tufts small & larger than in some of the other stages.

But one shed by 12 exactly like other, 4 d. black tufts, 2 on 7 & 2 on 10.

The black tufts are small in all, only from ① & ② separated by more than their width. The black ends are nearly all well developed, though the tufts are small.

These from Aug 22, cover dorsal, oval, much as in *maculata* or *arctata*. More opaque than in *arctata*.

old 193/92

361

C. fragilis

Chasmodon at Mammoth Hot Springs, Wyo., July 14 1892 in 10 nests, 9 on wild currant, 1 on wild rose. Nests as usual, full of dirt & hides.

Mat. Larva Allied to 356 (*C. fragilis*?) Hd blue gray dotted with black, mouth & ends of ant. black, labrum & base of ant. sordid white. Moist 3 mm.

Body a little enlarged at 12, 13 small. Ground color black, a broad pale blue d. band, broken at the seg. incisures & narrowed a little at both edges of each seg., absent on 2 & 13. Orange s.d. marks much reduced, scarcely noticeable,

consisting of from 1 to 3 narrowly linear, wavy & broken streaks. S.d. blue dots 2 per seg. very

large, subquadrate, either separate or confluent on their upper sides or also with the lateral

blue gray area, but always leaving a row of black patches, one in the middle of each seg. A faint lateral pale orange or whitish

line, broken or absent & bordering the black patches below. Below this line to the legs, blue gray, mottled with black. Venter

black, immaculate. Tho. feet black, abd. pinkish at tip. Hair moderately abundant

faintly reddish tinged on the back, white
on the sides. hind rather thin & not tufted.
Coon of bill, sparse with powder. Lupa robust
abd. small, rounded, no cremaster, post. abd.
seg. rapidly tapering. covered with pile
except bases. color uniform reddish, brown, not
shiny. L 13, 9 19 mm. W 5.5 - 7.5 mm

Egg cylindrical, flattened on top & 2 sides, rounded
below, closely packed in a compact mass around
lung & covered with varnish of a brown color.

white, smooth. diam 5 mm; height 1.2 mm

Sheld. 1.2.1 - July 15 found 11 more nests on Ribes

Orange, July 29, 1892, test no. 7955

Elisioecampa fragilis

Calc.	.54	78	1.10	1.54	2.1	2.8	3.5 (see 318)
Found	.55	7	1.1	1.5	2.2		3.5

July 21 1892

362

Orange, at Plattburgh, N.Y. July 26, 1892. 1st found black.

(Sheld. 1.5 + .6 -)
L 5.5 mm, body purplish brown, with black, the 5th on

2 large than the others & bearing rather long brown.

white d. patches on 3, 4 & 9 & pale orange at base

of abd. wants on 2. Hair all black, thin, long.

No tracing of red. tubercles, pencils or brush tufts.

Faint dark red mixed spots dorsally on 10 & 11.

Feet & ventral pale. [Lupa sh. 1.2.1 found on 24

July 29, 1892. Holding black, mouth a little pale, w. 7.

body black, with a d. white patch on 3-4 and 9

orange around wants on 12 & red at base of

large 5d want on 2. Post. 2 hair black, red

tubercles present, orange red. The drawing of 5-8

and 12 is velvety black after want. Bear a few

minute deep black hair beside the long ones

[July 29 on apple July 30 Holding black, lab. & base of

ant. white w. 3.5 mm. body dark gray, pale below, legs flesh

color. A d. velvet black band across 2-4 very dark

5-8, moderately broad 9-12. Pencils on 2 short (brown)

black, glanous; from 5 a white one, and glanous;

from 6 a black one glanous (both 3.5 mm); from 12

d. a thick moderate long deep black one (6 mm)

Brush tuft brown, whitish on the sides. A. & d.

with a black line above it.
 whitish band on 11-12, a similar 5-8 one whole
 length broken to ③. Yellowish on 9-11. ③ deep
 of 15-12, ③ deep red. ⑤ yellowish, the granula-
 tion blackish. Rest tubercles clear deep red,
 other hair thin, yellowish & black mixed.]
 [Com. 1891]

W. 2nd Aug 2 1st shiny, black. (shld 1.1)
 is 1 mm. Body black, puncts on 2 & 12 black, plumed, 1 mm long.
 to 2-3 & 9 white, 9 orange tinged 5-8; trace
 of a whitish 3-d line on 11 & 12 & a broken 5-8 one
 Red at base of 5-d with me. Rest. tub. clear red.
 Brush tufts on 5 & 6 black, on 7 & 8 white, the one
 on 8 consisting on but a few short hairs. Other
 hair black & whitish mixed. ✓

W. 4th Aug 8 1st same, w 1.5 mm. Body black, rest
 ③ & ⑤ red except ③ on 5-8, puncts 2.5 mm long
 black, white from ③ ⑤, black from ③ ⑤, these
 side ones 1.5 mm. Brush tufts on 5, 6 black on
 7, 8 white & a little smaller. Rest. tub. deep red
 yellow d. anthers on 3, 4 & 9, yellow on 3, 4, reddish
 on 9, as on body. ✓

W. 1st Aug 11 Same. (shld 2.2)
 Hd 2 mm pencil, on 2, 6 mm
 on 12, 4 mm, on 5 & 6, 2.5 mm. Brush tufts
 on 5-6 1/2 mm, brownish, on 7-8 yellowish.
 Rest. tub. clear red, the 2 back ones

slightly smaller. The dorsal anthers on 2-4
 ③ are punctured, the 5-d
 yellowish band on 11-12 & 2nd 5-d. one
 whole length are much as in the 1st. Lab.
W. 1st Aug 16 Hd. 2.8. As in 1st, but pencil
 on 2. 7 mm. 1/2 the hair less than half as long) but
 tufts all large & entirely yellowish white, white
 pencil from ③ ⑤, thick black one from ③ ⑥ and
 a smaller black one from ③ ⑦, distinct &
 only a little shorter than the one on 6. Some
 short brown hair precede the pencil on 12
 rest ③ & ⑤ deep red, except on 3 & 4 where they
 are large, yellowish white ③ is covered by the
 brush tufts on 5-8. ⑤ is blackish yellow. ✓✓

Recess to Coon Aug. 20. Coon 1 hair & silk.
Paper Aug. 12 ♀ Shld. from Coon 2.8 mm.
Imago ♀ Sept 1. Left with 1 H.H. and
 went to mate. Eggs proved fertile

NOTES

B (♀ antique Port Townsend) + ♂ of antique
 - Eggs fertile (362X)
 B (♂ & ♀, ♂ & ♀ from Victoria, mated
 in box. 2 set of eggs, both fertile,
 hatched May 23, 1893 (362Y)

probably
 O. badi
 probably
 mated ♂
 B. at
 Port Townsend
 Cat. no. 5311
 Wash.
 B311B

♀ *O. ludia* victor + ♂ *O. nova* Matshy
 and do, 2 sets of eggs. One fertile
 hatched May 23 1893, the other not
 fertile. Both fertile. Other hatched
 later the same day (362 Z)

Antennae X gave all larvae with side tufts but ①
 varying from few to many hairs. A few had orange
 red head, black around mouth. Tufts white
 pale yellow to brown; 2 black 2 yellowish; or
 2 and brown to just white. Ants ② ③ red
 the rest brownish.

Y no side tufts ②

Bodies kept these raised a brood 1894
 some by Y with side tufts,
 eggs hatched Fall 1894 and
 petered out.

Larvae Z mostly all side tufts; some faint. ②
 but as well developed as in X; some belts
 One has both side tufts black (joint 5, 6)
 No red heads seen. Tufts white, yellow
 or brown on the 2 and, brown or blackish
 or black in young ones.

Cormus cinerea in stage III on poplar, Matshy
 N.Y. July 31, 1892. Hd 1.2 mm. Fits description of
 BB222 in stage III but being 2 headed the patches
 are more as described in stage IV with the
 fainter colors of stage III.
 Molt Aug 1. Got next stage. (Put out)

364

Tripteryx modesta?

Eggs on poplar Plattatopha B.M. Size $2.4 \times 2.0 \times 1.3$
 Elliptical, flattened above & below, green, smooth,
 under lens densely punctured very aciculate,
 with large irregular mottled patches of purple-red
 (quilt of flies)

365

9/14/12

Eggs laid by Hypopropia miniata Plattatopha
 B.M. 1892. Subapical, much flattened on the
 basal side, coarsely & evidently reticulated even
 under the lens, shiny dark lead color, with
 a slight metallic green cast, diam. .6 mm. Laid
 loose & separate so that they roll around.

Hatched Aug 12. Hd. conical, black, shiny; w
 3 mm. body increased bet. segs. cylindrical.
 feet normal, joints inconspicuous. Hair
 distinct, blackish. Body orange color with
 a dark band from near the head to back
 of the annule, showing by transparency.
 *under lens. obj. covered with broad rounded retic-
 ulation which leave between them large, shallow
 rounded hexagonal depressions. ✓

366

Eggs by Crambidia pallida Aug 11 '92. Platystrophia
 Oblate spheroids, ~~slightly~~ more flattened on the basal
 side, smooth, shining pale pink, not obviously
 reticulated, though the surface is somewhat
 irregular; diam. .6 mm., but looks smaller than
 the Hypopneura egg. Laid perfectly loose.

Hatched Aug 12. Hd round, smooth, shining, ^{pale brownish} ~~moist~~
 & rather brown, ocelli black: w. .25? Body color
 much, not perceptible, but hairs distinct
 blackish; seg. incision evident. Fat normal.
 Body pale reddish, darker on the back. Looks
 like a little antlion.

367

Eggs by ♀ of pair of fine large Scadiolae in coll
 S.H.H., taken in cotton July 30, 1892. Laid on iron-
 tray board, loose & scattered over the book case. Found
 about 135, but none, probably, lost on the floor.

Elliptical, much flattened or a little indented on
 two sides, slightly truncate on one of the small
 ends which is the top & contains centrally the
 small pale micropyle; uniform sublineation
 brown, like acacia seeds, smooth under the
 lens. Dimensions .75 x .55 x .30 mm. Aug 1-4, '92
 Under 1/2 in. obj. they remain perfectly smooth, though
 not shining.

Calc. .32 .46 .67 .96 1.4 & Rec 354 Black. Hair 2-5 form
 Found .35 .50 .70 1.00 1.4 2.2 3.4 red, rest with all white
 with 7/34/126 (Said 2.2) would ones white. Spines white. all
 like last stage, no red & v. 368 = 354 white, partly white, ⑤ very com-
 mon, white. Spines white. spec. as, except the
 Eggs by ♀ Euprepia cary, Coon Oct 18/12 34 tubercles, white and black
 Lathrop, Ariz. 6, 1892.

Conoidal, rounded, flat at base; smooth,
shiny pale yellow; diam. 9 mm. In patch.
Hatched Aug 12 bod round shiny black, labrum pale
(Sh. p. 135)
w. 4 mm. Body whitish, asexual, warts very large
& black each with a single pale hair. Csh also
shiny black. Lines B-C apparent, present several
Aug 16 Hatched same, w. 5 mm. Body the same,
except that the warts each bear several thick
hair black & whitish mixed. There is a
blackish s.d. band, connecting wart @ (12) and
the csh is brownish black.

Mo 31 Aug 22 Hd almost blacked, shiny, black; w. 1 mm
 Ants black, body largely blackish, a broad
 dorsal stripe and shade appears on
 creamy white d. & lateral vena. Hair dense,
 rather bristles; the shorter hairs black, longer white
 (head 1.0)
Mo 5 Sept 29 Hd shiny black; w 1 mm Body almost
 black, the vent. shiny. Hair abundant, and long
 rather soft white & blackish mixed, the white
 predominating, but on 2-5 it is more grayed.
 Several longer, stiffer white hairs from extremities.
Mo 5 Sept 7 to before, but the hair is distinctly red from
 2-5, the rest almost all whitish. The tip of mandible
 is white, but the tubercle which bears the hair on black.
 Feet black. Hd. 1.4 mm (black 1.0, 1.45) IM. Nov 20

Calc. 7 1.1 1.7 2.8 4.2 net .66
Found .6 1.1 1.8 2.6 4.2

39 *Xorhodonta ampullacea* on oak, chiefly on

On Q. macrocarpa from Anguilla
Plattinburg Sept 15-1894
Ground pinkish, w green, not
mottled with brown reticulation
the band brown edged white
below. Body all suffused with
pinkish brown on a pale
ground, darker s-v, pale d.
ad-d band white; trace
of s-d: lat dots yellow
faint; anpe stig line
brown-red above, pinkish
white below.
Sits on stem below at base
of leaf.

of color
 to the
 Body
 faint
 a segmental
 yellow line, all the feet, except ^{the} anal, black.
 No. 3, May 13 Hd) Callid before, clay small,
 depressed; median antenae deep, but ^{the head} not
 bilobed. Light green, not shiny; a mottled

Mrs Garrison

~~of Cambridge~~

~~249 7th~~

The line on the side is red brown, bordered on both sides
with yellow & is continuous with the stig-
mal line of the body in the normal position. It
does not attain the vertex of head. Terminating
in a black point at each end. Green yellow with
two small reddish lines. Ht. 2.6 mm. Body
green, including the feet which are only
faintly tinged with blackish, the thorax
more strongly so. Stender, tapering posteriorly,
last segment small, though the feet are broad.
~~There is no anal pit.~~ There is a double dorsal
& single ^{waved} ^{subdorsal} whitish line; a lateral row

Common Papia Ford plant Larva from Clinton
Co. N. Y. Truxy June 25, 1893 L. angulosa

Later the band on abd is red brown on the anterior
side near to vertex, the d. band is distinctly border-
ed with yellow & there are a series of oblique lateral
yellow lines, 10 in number, each on 2 segments.
& running together above to form an obscure
yellow sd line which is close to the yellow
border of the dorsal band. Feet & venter whitish.
Tarsi uniform pale pinkish, threads deep crimson.

Cull 7 1.1 1.7 2.8 4.2 9.66

Found 7 1.1 1.8 2.7 4.3

370

6/14/93

Heterocampa marthae on rock oak, ^{single on upper side} cliffs, N.Y. Aug. 9, 1892. Egg shell flattened hemi-spherical, quite flat at base, thin & transparent, probably some shed green, since green tinted apparently. Diam 1.3. Hatched by large hole on one side of top. Under 1/2 in of ^{small, conical with shallow hexagonal depression of uni-form size} Larva Stage I Hd conical, higher than wide, flat in front, smooth, shiny, pale brownish yellow, with a brown line each side, from the vertex of head, the 2 united on top. w. 7 mm Body cylindrical, shiny, annulated, on water 9- a pair of divergent fleshy processes, each tipped with a hair & about 4 mm long, black at tip & red at base. The anal feet are prolonged into a pair of sternapods 5 mm ^(not 5 mm) in length, setose, pale brown at base, the outer half black with a broad white ring. Body ^{pale} greenish, a subobsolete brown d. band, emphasized on 5, 7 & 11. A very obscure yellow sd band. The sternapods must be much longer than the hatched larva. Aug 12 Hd conical in outline, higher than wide, rounded, not depressed at vertex, flat before, pale yellowish green, smooth brownish,

ocelli black, w 1.1 mm. Body as before, the marks rather more pronounced. Horns shorter, pale at base, red at tips smooth, conical. Tails 5.5 mm long, pale with a broad deep red brown dorsomedian & tipped with same color. Extensor threads deep crimson. At 1. adv the d. band becomes continuous, red brown, widened into a diamond shaped patch on 7 & slightly one on 5, faintly bordered with yellow; there is a ^{broad} yellow band running from the ocelli straight to vertex of head, uniform in width. Horn on 2 entirely brown. Aug 15 Hd rounded Δ, flat in front, pale green with a broad yellow band on 2. head. front & sides to vertex: ocelli black; w. 1.8 mm. The body is marked as in the last stage, the tail are 6 mm long, the horns short, close together & pointed. Later the band on hd is red brown on the anterior side near to vertex, the d. band is distinctly bordered with yellow & then are a series of oblique lateral yellow lines, 12 in number, each on 2 segments & running together above to form an obscure yellow sd line, which is close to the yellow border of the dorsal band. Feet & vertex whitish. Tails uniform pale pinkish, threads deep crimson

shell, the reticent alveolar
surface defined by rows
of bright pores 1.4 diam;
height .8 mm. No shine

H. Martensii

West Aug 23 Hd rounded Δ , flat in front, higher than wide, ~~is~~ shiny pale green, a vertical band each side from behind the black ocelli, nearly as the top, yellow, bordered in ground with red brown mottled, its front edge angulated inward about the middle; jaws blackish width 2.7 mm. 2 cervical dark red tubercles on the outer edge of 2, close together & each tipped with a hair. Stenopods 5.5 mm long, pale whitish with a brown line on the inner side. Body marked as in the end of last stage except that the red-brown center of the d band is more reduced, colored darker brown on 5, 7 & 11, the oblique lateral lines are not confluent above & the sides are heavily black spotted. Later the d band becomes dotted, with white, the 2 post oblique lines become obsolete, represented only by an absence of the black speckles & the one preceding them, on 10 & 11, is continued back as a yellowish subdorsal line to point 13. The oblique line on 4 & 6 is more distinct than the other (as there is a series of lateral red brown stains in the form of a much broken band ^{on one side only!}). The band on the head becomes largely red brown

mottled with yellow, still with a yellow edge just. West Sept 3 Hd oval, much higher than wide, rounded, full, not bilobed; pale leaf green, smooth, shiny, under the lens faintly reticulated. A broad band, with a blunt tooth on its inner side reaches from ocelli to vertex, red brown mottled with pale brown & bordered with yellow on the post. side. The hd is held with the vertex forward so that the band is H with the lateral oblique line on the body. Ground whitish, the jaw tipped black; w. 4.3 mm. Body higher than wide, somewhat Δ in shape & tapering from the head to j 13 which is small. Stenopods absent, their abbreviated bases rounded, & held close together, about 1 mm long. Cervical horns absent, represented by tiny brown dots close together, each bearing a fine hair. Body pale leaf green, thickly covered with little purplish black speckles which segregate into almost circled or circular lines, as seen under a lens. They are absent on the sides in 10 oblique bands, which each extend over 3 segments, from the d. line to S-V region. Some of them are marked faintly with yellow, the one which crosses the approach to S, distinct dr. A yellow S-S line on 11-13. Dorsal band widened on 2 and 3, also Δ on 7: red brown, mottled with whitish & bordered with yellow, marked in darker shades on 2, 5, 7 & 11. Sept 17 wallowed

Apr 2 1903

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Harrisina americana mat. on woodbine, Boston
Aug 19, 1892. Hd retracted & concealed within 2.
Body flattened, sides nearly \perp with a distinct
s-s ridge. 4 rows of low flattened areas, repre-
sented by warts, granules & bearing numerous
radiating short fine hairs & a few longer white
hair from the extremities. (1) s-a (2) lat. (3) s-s
& (4) s-s above bases of legs. The dorsum
broadly bright yellow. Banded between each
joint with blackish & again across the middle
of each, including the warts, with purple brown.
The bands all join a broad lateral purple-
brown band, which runs the whole length &
covers the s-s warts on 2 & 3 & the whole s-s region
on 4 & 5. s-s ridge 6-13 white, as is also the
venter & legs though some greenish tinged
especially just below the ridge. The feet brown.
Hd. black, long along the long antennae brown.
Width about 1 mm.

207. S. A. C.

372

Alypia octomaculata on woodbine, city Boston, Mass.
Aug 23, 1892. Hd very slightly bilobed, mouth projecting
slightly, orange brown, obscurely spotted with brown
& with distinct black spots. a large 1 below outer
of each lobe, below the 3, the middle one lowest
within smaller 1 before the black cells, 2 on
each side of the upper part of clypeal suture &
1 each side of middle of clypeus, each bearing
a pale hair. width 2.5 mm. Body enlarged at 12
with low conical tubercles, some almost flat,
smooth but not shiny nor granular, each
bearing a single pale hair & arranged perfectly
normally. (4) rather small, behind & a little
below the spiracle. No other hairs. Body
bluish white with 8 narrow trans. black bands
on each segment, sometimes merging with the
black warts. 2d, a trans band on 5, 6, 7 & 12
with faint ones on 8-11 dark orange as also
anal pl. & bases of all the legs & very distinct
white s-s band, broken into a series of inter-
secting patches nearly bordered with black, & present
only 5-12. Feet black, venter largely black
with distinct between 11 & 12.

373

Dec 18, 1892

Egg of *Colias behrii* from J. S. Zerkent, Yosemite
Cal. Spindle shaped, a little contracted just
before one end, with low longitudinal & trans-
verse ridges which divide the surface into
shallow rectangular parallelograms. L 1.3
w. .6 mm. Color white in the alcohol.

Food plant. Ground bucklerberry.
Larva in alcohol. Hd 2 mm, rounded, very slightly bilobed,
slightly articulated with horn, no other marks.
mouth part horn; ocelli orange black. An even
pinkish white d. line, very narrowly black bordered
& tapering a little at each end, obsolete on 2, 3 & 13.
A broader, even, s-d line, nearly white on the edges
salmon colored centrally, bordered above by a black
lunate shade on the ant. part of each seg. A simple
very even sub-sty band, pinkish centrally; the
border, black shade around the spiracles & are
larger & more diffuse than those above the
s-d line, but very faint on the tho. segs. A
faint, even, lateral band, paler than the ground
color which is probably some shade of green in
living specimen. Spiracles white, that on 12 larger
than the others. Tho. feet testaceous.
Hd .25 round horn. Body whitish, annulated. gills
no marks. Feet normal.

374

Scirodonta beliniana on elm, Roxbury, Mass.
Sept 3, 1892. Hd elliptical, rounded, flat in front
with a number of coarse black hairs. Green
with a white line from before ocelli to rear
vertex edged in front with dark brown;
mouth whitish, antennae pale yellow, joint
horn; ocelli black (sh. hd 2.1) w 2? mm. Body enlarged
slightly d. at 5 & 12, 13 small, the anal feet
not used, a rather long & divergent. Coarse
black hairs arranged as on *Arctia*, (3) very ob-
scure, (4) at seg. joint. On 5 & 12 (1) has coriaceous
elevated dark red base & slightly so, but
yellow on 2-4. Body green, a narrow yellow
dorsal line, bordered with purple brown 2-4,
this border divergent on 2, ending in line with
the bands on the head; a broad white s-d
band, marked with yellow on its upper
half & narrowly edged above with purple-
brown. It is contiguous to the d. line till 5-
when it passes a little down to the s-d
position, curves up on 12 to meet the red
tubercle, then down again to anal foot.
Lateral region dotted spotted with purple brown.

with a narrow stry. yellow line spirals reddish. Anal feet with a horn line on the outer side. Feet green.

Molt Sept 10 Hd as before but the line bordering the white band is black; median suture depressed w. 3.3 mm. Coarse black setae singly ① next d; ant. on 5-12, in line 2-4; ② s-d ③ lat. ④ stry post, ⑤ s-s, in line with ① on 2-4 ⑥ s-v, with some shorter hair on bases of legs. ① with dark red conical bases on 5 & 12 these on 12 can be moved by larva so as to make the hairs cross each other. Later dorsum suffused with yellow, space between s-d line & stry line with white, whole lateral & ventral area thickly dotted. Feet green, tinged with reddish, anal feet red-brown.

Calc	.57	.82	1.19	1.72	2.5	rat. .69
Found.	-	-	1.2	1.8	2.3-5	
Calc	.45	.75	3.75	(1.65)	2.5	rat. .66
	(.47)	(.72)	(1.1)			

Ichthyura rana? in separate house, agreed in tight lit, on little willow in front yard on Blue Hill Ave. Roxbury, Sept 8, 1892. (Shells 1.2, 1.8, 1.8 Stage hd 1.8 Hd round, full, pilose, blackish brown, pale above the mouth, slightly shiny. Body largely obscure purple-brown, the color forms a triple d. line & covering the whole lat. area to the feet. Dorsum grayish white between the line, & the color also forms a very narrow, wavy geminate s-d line, a rather broad lateral line & minute mottling all over the brown area, only distinct without a lens on s-v area. The feet black, also concolorous with body. The tubercles are very inconspicuous, but now ② is marked by little yellow dots the whole length. The hair are fine & short, pale, those arising from the body very much shorter than the ones from the tubercles. Another ① & ② both yellow. On 5 & 12 the purple brown extends over the dorsum, & there segs are a little enlarged spiracles black. Warts ① ② ③ ④ ⑤ yellow but obscure. ⑥ stry post, and particularly smaller.

Eggs on willow Hatched June 19 Jefferson Highlands
N. H. Vin. horn lateral, 5, 12 & 13 feet. D. whitish.
Hd 1.1 ± July 7 Side & 5 & 12 dark brown horn color continuous except
for minute a. described. (See mature blinn ex., prepared Aug. 2)

Stage 1.1. Hd slightly bilobed, rounded, clypeus
depressed, hairs, especially on the lower part.

Shiny black throughout. Cph & anal plate
blackish. Body vinous brown, with a

broad d. bend. ^{and} yellowish white, absent on
5 & 12 & containing a triple horn line. S-V

space from the spiracle to feet irregularly
mottled & streaked with yellowish. Feet

black. The minute pil. tub. Dc 2 are stained yellow
Stage 2.3 Hd slightly flat in front, blackish brown.

pale purplish in the sutures; labrum corded white
Body purplish brown, marked as before, but

the pale gray part are slightly obscured by
minute brown mottling & the yellow piliferous

tubercles are small but very distinct like
little yellow stars in a brown sky. Each bears its

own hair the rest of the body is minutely pilose
Grace of a black insected C-sh. but are dist. anal

another hd 2.5 Same but whole surface mottled with
pale gray gradually obscuring the line, though the yellow

tubercles are still distinct.
Egg hemispherical, flat below. Shell semitransparent white.
Laid singly or 7 together on under side of leaf. Each 1/2 in

covered with small, slight depression, closely divided apertures
forming obscure roundedly hexagonal reticulation. Hatched
by eating a piece off the vertex, leaving a ring around. D. 9 mm

Body corded white, thickly mottled with pale brown. 4 faint
triple d. sig. s-d & stop horn line. Spiracles black, mouth orange.

June 13 1893 Eggs & larvae I & II Hd. 45 Hd. 75
I. Hd. 1.1 shiny black a few hairs. Body brownish white, except black anal
plate & C-sh. 5 & 12 small, enlarged, brown horn a & also the whole lateral area
brown pale & broken into patches. Feet black & outwardly. Hair fine, very long, irregular
pale arising singly from minute brown tubercles. The d. has short & blackish
pale arising singly from minute brown tubercles. Black normal. Body minutely
pilose. In anal from skin tubercles corded black normal. Body minutely

C-sh. ~~on~~ clay-like, constructed certainly
Hatched on the 1st of July. Body flattened, wide in

Stage II Same w. 7 mm. Body flattened, wide in
front, the dorsal region pale yellow with lateral

of brown 12 in dorsal yellow. The dorsal 5 & 12
lateral area all deep brown horn. C-sh

anal black but not as distinct & coarse
as before. Four tubercles on right side of horn

& many other small white ones from
both sides on the horn.

Bilobed, median suture deep in vertex, shallow
in front, head flattened before, slightly wider

than high. Shiny black with dark spots
coarse hairs.

egg deep purplish pink, pale around
the dorsal, slight shiny.

Imago Sept 29 1895

Crippled ♀ I. V. 1895

I. V. 1895

